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June 26, 2003

BY ELECTRONIC FILING

Marlene H. Dortch, Secretary
Federal Communications Commission
445 Twelfth Street, S.W.
Washington, D.C. 20554

Re: WT Docket No. 02-55
Ex Parte Presentation

Dear Ms. Dortch:

On Wednesday, June 25, 2003, Barry West, Executive Vice President and Chief Technology Officer, Nextel Communications, Inc. ("Nextel"), Lawrence Krevor, Nextel's Vice President – Government Affairs, and Leonard Cascioli, Nextel's Vice President - RF Engineering and Operations, met with Ed Thomas, Chief, Office of Engineering and Technology; Jim Schlichting, Deputy Chief, OET; Rashmi Doshi, Chief, Laboratory Division, OET; Mike Marcus, Associate Chief, Technology, OET; and William Hurst, Saurbh Chhabra, and Salomon Satche, all of OET, regarding the Commission's above-captioned rulemaking on public safety communications in the 800 MHz band. During the meeting, Nextel's representatives and OET staff discussed the proposed Consensus Plan for resolving CMRS – public safety interference in the 800 MHz band and providing additional spectrum for public safety communications. Attached to this letter is a written presentation provided to OET staff, which includes a description of the cause of public safety interference in the 800 MHz band, a projection of future interference conditions at 800 MHz in the absence of band realignment, and an explanation of the benefits of the Consensus Plan.

Pursuant to section 1.1206(b)(2) of the Commission's rules, 47 C.F.R. § 1.1206(b)(2), this letter and attachment are being filed electronically for inclusion in the public record of the above-referenced proceeding.

Sincerely,

/s/ Regina M. Keeney
Regina M. Keeney

Attachment

cc: Ed Thomas
Jim Schlichting
Rashmi Doshi
Mike Marcus
William Hurst
Saurbh Chhabra
Salomon Satche

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PUBLIC SAFETY INTERFERENCE: YESTERDAY, TODAY and TOMORROW

FCC Presentation
Barry West
Executive Vice President and Chief Technology Officer
Nextel Communications Inc.
June 25, 2003

Table of Contents

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Original Condition of 800 MHz Band

- Technologies
  - All noise-limited (receiver internal noise only limiting factor)
  - Modulation in band all FM
    - Sideband energy directly related to modulation
    - Average sideband energy clustered +/- 0.5 kHz around individual carriers
- Deployment and Operation
  - High-site deployment the norm for all 800 MHz services
  - Cellular deployment driven primarily by coverage, not capacity
- Interference Mechanism
  - Co-channel interference was the primary concern; addressed geographically
  - Emission mask on transmitters to protect other users
  - No concern in technology development or rules for IM or OOBE interference

Growth in Band

- Growth in 800 MHz band to date attributable to:
  - Increased desire for mobility both for business and consumers
    - Movement away from mobile-based to handheld-based systems both for CMRS and non-CMRS users
  - Runaway success of cellular technology
    - Expected 1M customers by 2000
    - Actual >130M customers by 2000
  - Increased demand for PS and B/ILT communications:
    - Lack of sufficient spectrum in 30-50, 150, 450 MHz allocations

Current Situation in Band

- CMRS:
  - CMRS site additions driven heavily by need for additional capacity
    - More intensive frequency re-use
    - Lower antenna heights at sites (also forced by zoning)
    - Interference-limited system design required
  - Modulation types now mostly digital for CMRS
    - Spectral energy distribution essentially constant across channel allocation as opposed to being clustered around carrier with FM
    - OOBE in compliance with FCC rules but much more intense (byproduct of modulation method)
  - Increased use of wideband transmitters to offset capacity needs
    - Mostly in upper parts of cellular bands
    - Operations adjacent to NPSPAC appear to be mostly narrowband today
- PS and B/ILT:
  - Increased deployment of trunked systems (particularly in NPSPAC) to replace exhausted 150/450 MHz systems and for interoperability
  - Designs still noise-limited
    - PS systems limited by budget; no possibility of increased funding

Impairments from Current Condition

- Near-far effect causes users of high-site systems to receive locally-strong CMRS signals when close to CMRS sites:
  - IM product formation in noise-limited receivers
  - OOBE interference from residual CMRS transmitter noise
- Fundamentally incompatible design philosophies in interleaved adjacent spectrum
  - Noise limited NPSPAC Public Safety systems sandwiched between CMRS operations

Current Practices of Interference Mitigation

- "Best Practices" provide limited capability to mitigate interference problems
  - Retuning of CMRS frequencies
  - Static CMRS frequency plans
  - CMRS antenna changes
  - CMRS transmitter power reductions
  - Filtering of transmitters in excess of FCC requirements

Current Practices of Interference Mitigation (Cont'd)

- "Best Practices" not practical in long term:
  - Retuning not workable on large scale or in future:
    - Limited frequency choices for retuning to avoid IM hits on PS frequencies
    - Restricted frequency assignments at one site limits choices at adjacent / nearby sites
    - Unusable with wideband technologies (e.g. same frequencies used at all sites in CDMA system)
    - Use of extra filtering further limits frequency choices for retuning
    - Limiting frequency assignment flexibility to combat IM interference constrains capacity and limits spectrum efficiencies causing the deployment of more sites
  - Cavity Filters do not protect close-in channels; have limited ability to reduce OOBE noise
  - Other practices require extra CMRS sites:
    - To correct coverage holes caused by power reductions or antenna changes
    - To correct frequency reuse issues caused by static frequency plans
    - Extra sites unattainable in current zoning environment
    - Additional extra sites would be low sites; create additional potential for interference

Future Spectrum Usage at 800MHz

- Future CMRS operations will require greater bandwidth per transmitter to support data services and increased voice capacity
  - More intensive spectrum reuse
  - Little / no opportunity to retune for IM
- CMRS transmitters will almost always be "on" due to demand increases and technology advances
  - Interference probability as a function of time will increase
- CMRS requirement to operate AMPS systems "sunsets"
  - AMPS spectrum will be available for digital service
- END RESULT:
  - Entire 800 MHz CMRS spectrum will be filled with wideband digital operations
  - Interference will be constant and widespread
  - **NPSPAC in particular adversely affected**
  - Little / no opportunity to retune for IM or OOBE

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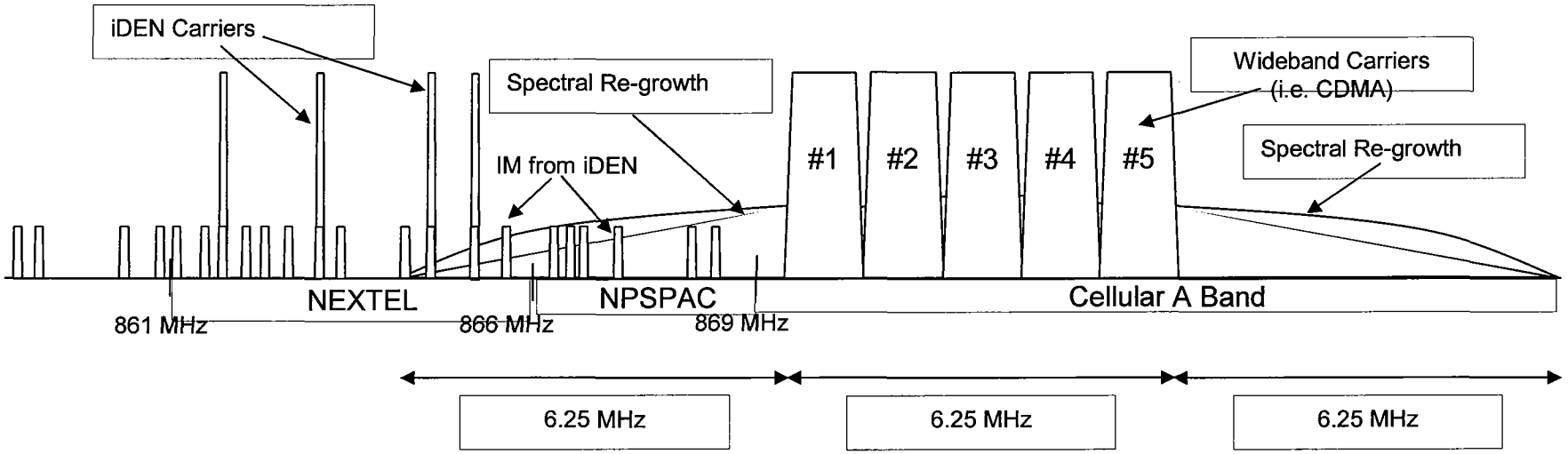
NPSPAC is of Special Concern

- NPSPAC is sandwiched between CMRS spectrum below 866 and above 869 MHz:
  - No opportunity for CMRS filters to roll off
  - Maximum exposure to IM products from CMRS operations below 866 MHz and above 869 MHz
    - Bad today with narrowband services
    - Worse tomorrow with wideband services
- No opportunity for "voluntary frequency swaps" in NPSPAC to correct problems:
  - Arrangement in NPSPAC governed by region; no local arrangements possible
  - PS has already indicated that they would not accept CMRS interleaving in NPSPAC under any circumstances

Public Safety Interference in Near Future



- Spectral re-growth is intermodulation caused by wideband carrier(s).
- Measurements have shown that spectral re-growth from 3 CDMA carriers alone can cause comparable Public Safety receiver performance degradation to that from IM interference caused by two iDEN carriers.
- As cellular A band operators start deploying wideband technology adjacent to NPSPAC, the entire NPSPAC allocation will experience significant interference that cannot be corrected by retuning

* Drawing not to scale

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Why the Consensus Plan?

- Consensus Plan is entirely proactive:
  - Relocates NPSPAC as a block
    - Significantly reduces probability that wideband CMRS deployments cause problems to PS NPSPAC operations
    - Preserves PS coordination efforts in that block
  - Removes other interleaving between CMRS operators and high-site systems
    - Allows OOBE to be more effectively filtered than with methods (e.g. cavity combiners) suggested by others
    - Allows receiver mfrs to implement better front-end filters in future
  - Recreates to the extent possible a noise limited environment for Public Safety and B/ILT

Probability Study of IM-Related Interference after Realignment

Figure 3.
Adjusted Average Probability of IM-Related Interference in the Post-Realignment Environment
(based on analyzed interference cases)